

The Mis-Perception of Price and Credit
Policy in Developing Country Agriculture: The Case of Costa Rica

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ABSTRACT

The impact of price and credit policies on agricultural production in Costa Rica is examined. Declining relative prices and an overvalued exchange rate have contributed to the stagnation of farm production. Low interest loans have not promoted agricultural production but have rather reduced the flow of bank credit to agriculture.

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I. Introduction

Developing countries are frequently perplexed by the failure of seemingly high farm prices and subsidized interest rates to promote agricultural output. The stagnation of Costa Rican agriculture in the later part of the 1970s is an excellent example of this problem. A leading Costa Rican economist, Eduardo Lizano, has documented this stagnation in his recent book, Agricultura y Desarrollo Economico, which shows that the growth rate of value added in agriculture failed to average even 1 percent annually in the 1973-77 period while the growth rate of gross domestic product (GDP) averaged more than 5 percent per year over the same period. An important characteristic of this stagnation, as Lizano points out, is that it is not concentrated in one or two products but rather tends to be spread throughout the agricultural sector. In his search for possible causes of this stagnation, Lizano examines and then dismisses prices and markets, and he also finds no causal relationship between agricultural production and bank credit.

The purpose of the present paper is to examine the impact of price, exchange rate and credit policies on the aggregate performance of Costa Rican agriculture during the 1970s. It will be argued that Costa Rica, not unlike many other developing countries, has pursued price, exchange rate and credit policies that adversely affect the performance of the agricultural sector.

Agricultural price policy in developing countries often tends to emphasize the level of nominal prices rather than real prices, and this becomes particularly serious in an inflationary setting where nominal prices are adjusted with a lag. Moreover, domestic prices are rarely compared to international prices, and when such comparisons are made the appropriateness of the exchange rate is seldom considered. Government credit policies for the agricultural sector typically focus on preferential low interest rates and fail to recognize that credit is fungible and cannot easily be tied to particular activities. Moreover, in an inflationary setting such interest rate policies discourage banks from maintaining the real volume of agricultural lending while providing substantial income transfers to a relatively few credit recipients.

The following section examines the output performance during the 1970s of twelve of Costa Rica's principle agricultural products (rice, corn, beans, sorghum, coffee, bananas, cocoa, sugarcane, beef, milk, hogs and broilers) in relation to their real (deflated) prices. The next section compares the prices of these products to their international prices, that is, their prices in the United States. The next to the last section examines the effects of low interest rate bank loans on agricultural output and the relationship of output to the real volume of bank credit. The final section summarizes the main conclusions of the analysis, and especially the implications for government price and credit policies.

II. Production and Real Domestic Prices

Two government institutions play a major role in determining prices in the agricultural sector. The Consejo Nacional de Produccion (CNP) guarantees minimum purchase prices to farmers for basic grains (rice, sorghum, corn and

beans) and has monopoly control over imports and exports of these crops as well as livestock products. The Ministerio de Economía, Industria y Comercio (MEIC) has an important role in controlling the retail and wholesale prices of food products and in coordinating its price control policy with the CNP's price support policy.

A level of prices high enough to stimulate production while guaranteeing consumers an abundant, low-cost supply of food is usually a focus of controversy for institutions that have price control responsibility such as the CNP and MEIC. Price setting is even more complex in an inflationary economy where the level of nominal prices may be quite different from "real" prices, that is, nominal prices adjusted for inflation by some deflator such as that for Gross Domestic Product (GDP). Although the attention of policymakers is often focused on nominal prices, these prices are useless as indicators of price incentives in an inflationary economy where a high nominal price may, after a time without adjustment, become a low real price that no longer provides any incentive to increase production.

Nominal prices of all twelve agricultural products examined in the present study increased significantly during the 1970s, and this may have led policymakers to believe that farm prices were adequate. However, when these same nominal prices are adjusted for inflation it becomes clear that low real farm prices may be an important cause of the stagnation of Costa Rican agriculture. Only three of the twelve products (coffee, cocoa and sorghum) had higher deflated farm prices at the end of the decade than at the beginning. For the other nine products, the deflated farm price was not only lower at the end of the decade but also substantially below deflated farm prices in the mid-1970s.

Declining real farm prices in the 1970s appear to have contributed to the stagnation of production for eight of the twelve products studied. Corn, bean, hog and poultry production have all stagnated as their deflated farm prices have declined during the 1970s. Government price policies, accompanied by the exchange rate policies to be discussed in the next section, appear to be a major cause of the stagnation in beef, milk, banana and sugar production. Total slaughter of beef cattle increased only 1 percent annually as the deflated farm price decreased by almost 25 percent from the early to late 1970s. Milk production also increased at a 1 percent annual rate in the late 1970s as the deflated farm price decreased to a level below that of the early 1970s. Banana production has stagnated at about 1.1 million metric tons annually as the deflated farm price declined by about 22 percent from the mid to the late 1970s. Sugar production has not kept pace with domestic demand so that sugar exports have declined from over half of production to about 35 percent of production in the late 1970s.

Coffee and cocoa experienced increasing real prices during the 1970s and achieved satisfactory rates of increase in production. Sorghum production increased at an average annual rate of 30 percent in response to increasing real farm prices until 1977, but since then prices and production have declined. Although deflated rice prices have fallen by about 20 percent during the 1970s, production has increased at an annual rate of 18 percent, partly due to the introduction of higher yielding varieties and a shift in rice production toward areas with a more favorable distribution of rainfall. A second factor contributing to increased rice production has been the introduction of a highly subsidized crop insurance scheme (premiums paid were

equal to only about 20 percent of damages paid) primarily benefiting large rice producers (Vargas).

III. International Price Comparisons

When the prices of agricultural products in Costa Rica are compared with the prices of these same products in other countries, and these comparisons are made at the official exchange rate for the Costa Rican colon, Costa Rica appears to be noncompetitive in the production of many agricultural products. However, using the official Costa Rican exchange rate for such comparisons is inappropriate and misleading. Using the official exchange rate is not only likely to mislead government officials in setting price policies for the agricultural sector, but also directly affects agricultural output through incentives for producers. If, as is the case in Costa Rica, the official exchange rate is overvalued, then revenues received in domestic currency for export sales are accordingly reduced, so that the incentives for producers to export, or even to produce those products which might be exported, are reduced.

There are two separate reasons for arguing that the Costa Rican colon is overvalued, and each of these must be taken into account independently in arriving at an estimate of the exchange rate that should be used in making international price comparisons. The first reason is based on traditional purchasing power parity arguments (Officer). In mid-1974 Costa Rica officially devalued by unifying its multiple exchange rates at the higher free market rate of 8.57 colones per U.S. dollar, and this fixed official rate was maintained throughout the rest of the 1970s. From mid-1974 to mid-1979 the Costa Rican wholesale price index increased by 81 percent, while the wholesale price index in the United States, Costa Rica's major trading partner, increased by 47 percent. Assuming that the official exchange rate adopted in mid-1974 was

an equilibrium rate at that time and using the relative changes in wholesale prices in Costa Rica and the United States implies that the Costa Rican colon was overvalued by 23 percent as of mid-1979. It can further be argued that the mid-1974 devaluation was insufficient to remove completely the overvaluation of the colon even at that time, as the large deficit in Costa Rica's balance of trade persisted after 1974.

To this estimate of the overvaluation of the official exchange rate must be added an estimate of the overvaluation due to the structure of protection. It is now widely recognized that the protection of import-competing activities through tariffs and other trade barriers implies negative protection for export activities, in part because the domestic currency is valued higher vis-a-vis foreign currencies than it otherwise would be.^{1/} Tariffs and other barriers against imports reduce the demand for foreign exchange and thereby raise the value of the domestic currency. Estimates of overvaluation due to the structure of protection are based on comparing the existing exchange rate with estimates of what the exchange rate would be under a regime of free trade. This depends, in turn, on estimates of the elasticities of demand for imports and of supply and demand for exports together with the rate of tax (or subsidy) on exports and the rate of nominal protection for imports (including both tariffs and other trade barriers) (Bacha and Taylor). Estimates for Costa Rica based on data for 1978 yield an overvaluation due to protection of slightly more than 20 percent.^{2/}

When the official exchange rate is used to compare farm level prices in Costa Rica with those in the United States, one set of conclusions is reached about the competitiveness and efficiency of Costa Rican agriculture, but the conclusions are strikingly different when the overvaluation of the exchange

rate is taken into account. As shown in Table 1, the ratio of Costa Rican farm level prices to U.S. farm level prices at the official exchange rate suggests that Costa Rica is more efficient than the United States only for beef among the eight commodities examined.^{3/} However, when a 40 percent overvaluation of the official exchange rate is taken into account (which is quite conservative given the foregoing estimates) Costa Rica is more efficient in five of the eight commodities: rice, milk, pork, and possibly beans, as well as beef. Such a dramatic change in the competitive position for these products indicates clearly that an overvalued exchange rate can introduce serious distortions in government price policies and can eliminate price incentives for producers of actual or potential exports.

Table 1. Comparison of Farm Prices in Costa Rica and the U.S. for 1978-79 at the Official Exchange Rate and Adjusted for a 40 Percent Over-Valuation of the Costa Rican Colon

Commodity	Ratio of Costa Rican Prices to U.S. Farm Prices	
	Official Exchange Rate	Exchange Rate Adjusted 40 Percent
	(8.57 Colones per U.S. \$)	(12.00 Colones per U.S. \$)
Rough Rice	1.24	0.88
Corn	2.39	1.71
Sorghum	2.10	1.50
Dry Edible Beans	1.32	0.99
Beef	0.72	0.51
Milk	1.19	0.85
Hogs	1.14	0.82
Broilers	1.73	1.23

Source: Banco Central de Costa Rica and U.S. Department of Agriculture.

IV. Agricultural Credit

Commercial banks have long been the predominant source of agricultural credit in Costa Rica, accounting for two-thirds to three-quarters of agricultural lending, with most of the rest spread among a variety of informal sources such as moneylenders and friends and relatives (Vogel and Gonzalez-Vega). The Costa Rican banking system consists of a Central Bank and four commercial banks, all of which are owned by the government of Costa Rica, but which operate with some autonomy, especially the commercial banks. The most important attributes of bank agricultural lending in Costa Rica are the low interest rates set by the Central Bank and the limits (both minimum and maximum) that the Central Bank sets on the amount of credit to be made available for different activities.

Throughout most of the 1970s, interest rates on bank agricultural loans have been set between 8 and 11 percent, with the lowest rates on loans for small farmers and for certain preferred activities such as planting basic grains and oilseeds. The main argument for these low interest rates, which have even been below the rate of inflation in Costa Rica during several years of the 1970s, is that they improve the distribution of income and promote agricultural production in the face of other distortions that place the agricultural sector, and especially small farmers, at a disadvantage (Lizano). However, bank agricultural loans have been found to be highly concentrated in large loans to relatively wealthy farmers, a pattern unlikely to improve the distribution of income (Vogel). Moreover, as argued below, the ability of low interest rate loans to promote agricultural production is equally unclear.

Given the impact of the government's price policies on agricultural production, there is little indication that bank credit at low interest rates has

effectively complemented these price policies or offset any distortions that may have been induced. Recent studies of rural financial markets that emphasize the fungibility of credit help to explain why this is so (Von Pischke and Adams). Because credit is fungible, preferential low interest rates for the agricultural sector will fail to redirect resources toward favored activities in the agricultural sector. Preferential low interest rates do not change the prices paid by farmers for inputs or received for output or the technologies available to them, and hence the relative profitability of agricultural and non-agricultural activities as well as different activities within the agricultural sector is left unchanged.

Since credit provides general command over resources, it cannot readily be tied to the production of particular goods. Diversion of loans to other than the prescribed uses by farmers has been found to be widespread whenever audits of credit use have been carried out.^{4/} Even diligent and costly programs of credit supervision have failed to eliminate diversion and, in any case, are based on the dubious assumption that supervisors know better than farmers what farmers should be producing and how they should be producing it. More subtle and pervasive than outright diversion is the case in which the farmer presents the lender with his most attractive undertaking, one which would be carried out even if a loan were not received, and then uses the additional resources obtained with the loan for some unspecified activity. Such behavior is especially likely for relatively wealthy farmers who, as mentioned above, obtain the lion's share of bank agricultural credit in Costa Rica and often have economic activities outside the agricultural sector.

The belief that preferential low interest rates on bank agricultural loans can promote agricultural production has also diverted attention from the more

important fact that bank credit for agriculture has been declining in real terms during most of the 1970s. Measured in nominal terms, bank credit disbursed for the agricultural sector has increased in almost every year during the 1970s, but when these figures are corrected for inflation a very different picture emerges. For 1977, 1978 and 1979 the real value of new loans to the agricultural sector averaged less than 90 percent of what it had been in 1971 and less than 80 percent of the peak reached in 1974. For only three of the twelve agricultural products considered in this study (beef cattle, sorghum and cocoa) was the real volume of bank credit greater at the end of the decade than it had been in earlier years. Moreover, the share of bank credit going to the agricultural sector had fallen from almost 50 percent at the beginning of the 1970s to less than 40 percent by the second half of the decade.

The reduction in bank credit for the agricultural sector may in part reflect a decrease in the demand for credit due to the adverse trends in agricultural prices after inflation is taken into account. However, the substantial subsidy implicit in low interest bank loans for agriculture and the fact that credit is fungible make it difficult to believe that a lack of profitable opportunities in the agricultural sector would deter borrowing. A more reasonable explanation is a reduction in the supply of bank credit for the agricultural sector, in spite of the upper and lower limits that the Central Bank sets on lending for different activities. A partial financial reform that was initiated in Costa Rica in mid-1978 raised most interest rates substantially but left many bank lending rates for agriculture largely unchanged. This new interest rate structure has made it unprofitable, if not impossible, for even government-owned banks to provide more credit to the agricultural sector, so that restricted access to bank credit is likely to continue to plague Costa Rican agriculture.

V. Conclusions

Costa Rican agricultural production has tended to stagnate during the 1970s, especially during the second half of the decade. Adverse government price policies for the agricultural sector have contributed substantially to this stagnation. Although the prices of most agricultural products have risen in nominal terms during the 1970s, deflating to real prices reveals much lower prices for most agricultural products at the end of the decade than in earlier years. Government price policies for the agricultural sector have either ignored the reality of inflation or have attempted to combat inflation through agricultural price controls, and these have been costly policies in terms of agricultural output foregone.

The government may also have been misled by making inappropriate international price comparisons based on the official exchange rate, comparisons which suggest that Costa Rica is an inefficient and noncompetitive producer for many of its main agricultural products. When the official exchange rate is adjusted for an overvaluation of at least 40 percent, Costa Rican producers are shown to be efficient and competitive in a variety of agricultural products that are not currently being exported or are even being imported. Thus, Costa Rica is not only foregoing agricultural output but is also wasting foreign exchange at a time of large balance of payments deficits. Moreover, government credit policies emphasizing low interest rates on bank agricultural loans have done little or nothing to offset the effects of adverse price policies. The main result of such government credit policies has been to reduce the flow of bank credit to the agricultural sector in real terms, thereby complementing government price policies in their discrimination against the agricultural sector.

Footnotes

- ^{1/} See Balassa and Associates (1971) for a full discussion of effective protection and for estimates of effective protection for several developing countries including Brazil and Chile.
- ^{2/} The estimate of a 20 percent overvaluation in Costa Rica due to protection appears quite modest compared to the estimates of Balassa and Associates of 27 percent for Brazil and 68 percent for Chile as of the mid-1960s.
- ^{3/} The four commodities excluded are Costa Rica's traditional exports: coffee, sugar, bananas and cocoa.
- ^{4/} Few of these studies have been published because they are typically carried out on a confidential basis by international lending institutions.

References

- Bacha, Edmar and Lance Taylor. "Foreign Exchange Shadow Prices: A Critical Review of Current Theories." Quarterly Journal of Economics. May, 1979 pp. 197-224.
- Balassa, Bela and Associates. The Structure of Protection in Developing Countries. Baltimore: The John Hopkins University Press. 1971.
- Lizano, Eduardo. Agricultura y Desarrollo Economico. San Jose, Costa Rica: Editorial Universidad Estatal a Distancia. 1980.
- Officer, Lawrence H. "Purchasing Power Parity Theory of Exchange Rates: A Review Article." International Monetary Fund Staff Papers. Vol. XXIII, No. 1. March, 1976. pp. 1-60.
- Vargas, Thelmo, Claudio Gonzalez-Vega y Alberto Di Mare. El Seguro Agropecuario en Costa Rica. San Jose: La Academia de Central America. 1979
- Vogel, Robert C. and Claudio Gonzalez-Vega. Agricultural Credit in Costa Rica. Associated Colleges of the Midwest and US/AID, San Jose, Costa Rica. July, 1969.
- Vogel, Robert C. "The Effect of Subsidized Agricultural Credit on Income Distribution in Costa Rica." In Undermining Rural Development With Cheap Credit. Edited by Dale W Adams and others. Boulder: Westview Press, 1984.
- Von Pischke, J. D. and Dale W Adams. "Fungibility and the Design and Evaluation of Agricultural Credit Projects," American Journal of Agricultural Economics. Vol. 62, No. 4, November, 1980, pp. 719-726.